

IN THE CLAIMS:

Kindly replace the claims of record with the following full set of claims:

1. (Currently amended) A resonator structure in particular a bulk-acoustic-wave resonator, such as a film BAW resonator or a solidly-mounted BAW resonator comprising at least one substrate, at least one reflector layer applied or deposited on the substrate, at least one bottom electrode layer, in particular bottom electrode, applied or deposited on the reflector layer, at least one piezoelectric layer, in particular C-axis normal piezoelectric layer, applied or deposited on the bottom electrode layer, at least one top electrode layer, in particular top electrode, applied or deposited on the bottom electrode layer and/or on the piezoelectric layer such that the piezoelectric layer is ~~in~~ between the bottom electrode layer and the top electrode layer, characterized by at least one dielectric layer applied or deposited in and/or on at least one space in at least one region of non-overlap between the bottom electrode layer and the top electrode layer, wherein the bottom electrode is deposited on a select portion of the reflector layer, said at least one dielectric layer associated with the bottom electrode is deposited on a remaining portion the reflector layer, and the top electrode is deposited on a select portion of the piezoelectric layer above the deposited dielectric layer and a portion of the bottom layer, such that the area of the deposited dielectric area represents the at least one non-overlapping region.

2. (Currently amended) ~~A~~The resonator structure according to claim 1, ~~characterized in that~~ wherein the dielectric layer is deposited in such way that the total

thickness of the region of non-overlap between the bottom electrode layer and the top electrode layer is equal to the total thickness of the region of overlap between the bottom electrode layer and the top electrode layer thus implying a planarisation of the resonator structure or that the thickness of the dielectric layer as deposited in the region of non-overlap between the bottom electrode layer and the top electrode layer is chosen other than that required for planarisation.

3. (Currently amended) ~~A-~~The resonator structure according to claim 1, characterized by wherein at least one mass loading layer applied on the top electrode layer and/or on the dielectric layer.

4. (Currently amended) ~~A-~~The resonator structure according to claim 3, ~~characterized in that~~ wherein the mass loading layer and/or the dielectric layer and/or the top electrode layer can be thickened in at least one region of at least one parallel resonator or shunt resonator and/or can be thinned opened and/or removed in at least one region of at least one series resonator.

5. (Currently amended) ~~A-~~The resonator structure according to claim 1, ~~characterized in that~~ wherein the resonator structure comprises at least one rounded edge and/or that the top electrode layer is smaller than the bottom electrode layer.

6. (Currently amended) ~~A~~The resonator structure according to claim 1, ~~characterized in further comprising~~having electrodes whose edges define the edge of the resonator, which are thin compared to the total thickness of the resonant cavity.
7. (Currently amended) ~~A~~The resonator structure according to claim 6, ~~characterized in having further comprising~~an electrode thickness d_e divided by thickness of resonant cavity d_{rc} according to $1\% \leq d_e/d_{rc} \leq 10\%$,
8. (Currently amended) A filter comprising at least one resonator structure (~~100, 100'~~) ~~according to claim 1~~ comprising:
- at least one substrate, at least one reflector layer applied or deposited on the substrate, at least one bottom electrode layer, in particular bottom electrode, applied or deposited on the reflector layer, at least one piezoelectric layer, in particular C-axis normal piezoelectric layer, applied or deposited on the bottom electrode layer, at least one top electrode layer, in particular top electrode, applied or deposited on the bottom electrode layer and/or on the piezoelectric layer such that the piezoelectric layer is in between the bottom electrode layer and the top electrode layer, characterized by at least one dielectric layer applied or deposited in and/or on at least one space in at least one region of non-overlap between the bottom electrode layer and the top electrode layer wherein the bottom electrode is deposited on a select portion of the reflector layer and said at least one dielectric layer associated with the bottom electrode is deposited on a remaining portion the reflector layer and the top electrode is deposited on a select portion of the piezoelectric layer above the deposited dielectric layer and a portion of the bottom

layer such that the area of the deposited dielectric area represents the at least one non-overlapping region.

9. (Currently amended) A The filter according to claim 8, ~~characterized by wherein~~ more than one closely-spaced resonator structure with widths of gaps between the resonator structures adjusted to give appropriate acoustic coupling and compatibility with mask design rules.

10. (Currently amended) A method of producing a resonator structure in particular a bulk-acoustic-wave resonator, ~~such as a film BAW resonator or a solidly mounted BAW resonator comprising the following steps:~~

- (i) applying or depositing at least one reflector layer on at least one substrate;
- (ii) applying or depositing at least one bottom electrode layer ~~in particular bottom electrode,~~ on a portion of the reflector layer and a dielectric layer on the remaining portion of the reflector layer;
- (iii) applying or depositing at least one piezoelectric layer, in particular C-axis normal piezoelectric layer, on the bottom electrode layer;
- (iv) applying or depositing at least one top electrode layer, in particular top electrode, on the bottom electrode layer and/or on the piezoelectric layer such that the piezoelectric layer is ~~in-between~~ between the bottom electrode layer and the top electrode layer, wherein the top layer is positioned above the dielectric layer and a portion of the bottom electrode layer. ~~characterized by at least one additional step of~~

~~(v) applying or depositing at least one dielectric layer in and/or on at least one space in at least one region of non overlap between the bottom electrode layer and the top electrode layer.~~

11. (Currently amended) ~~A~~The method according to claim 10, characterized by ~~at least one additional step of~~(vi) applying or depositing at least one mass loading layer on the top electrode layer and/or on the dielectric layer wherein it is possible to open and/or to remove the mass loading layer and/or the dielectric layer in at least one region of at least one series resonator and/or to thicken the mass loading layer and/or the dielectric layer in at least one region of at least one parallel resonator or shunt resonator.

12. (Canceled)